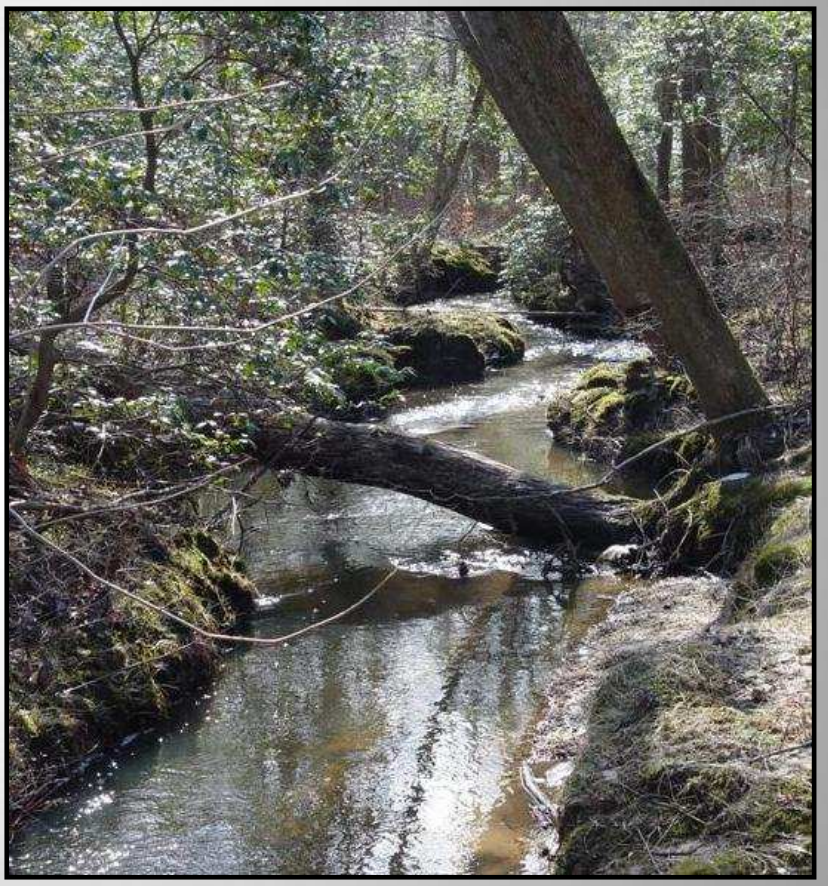
U.S. Fish & Wildlife Service

CHESAPEAKE BAY FIELD OFFICE

COASTAL PROGRAM

U.S. Fish and Wildlife Service

2016 Monitoring Projects



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www.chesapeakebay.fws.gov

Moore's Run – Baltimore City

Monitoring:

- Yearly since 2004
- Conducted as part of City's NPDES program

- Geomorphic and Hydraulic
  - Vertical stability
  - Lateral stability

Various Baltimore City sites

Monitoring:

- Inspecting 4 sites across the city:
  - Western Run
  - Biddison Run
  - Maidens Choice
  - Stony Run

- Visually-based Rapid Stream Restoration Monitoring protocol
  - Vertical stability
  - Lateral stability
  - Riparian vegetation
  - In-stream structures

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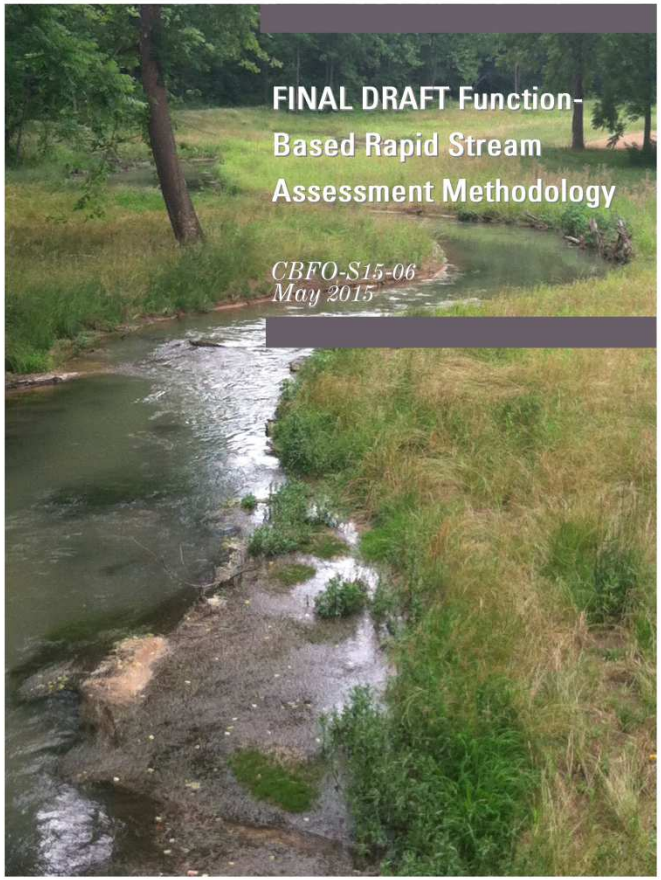
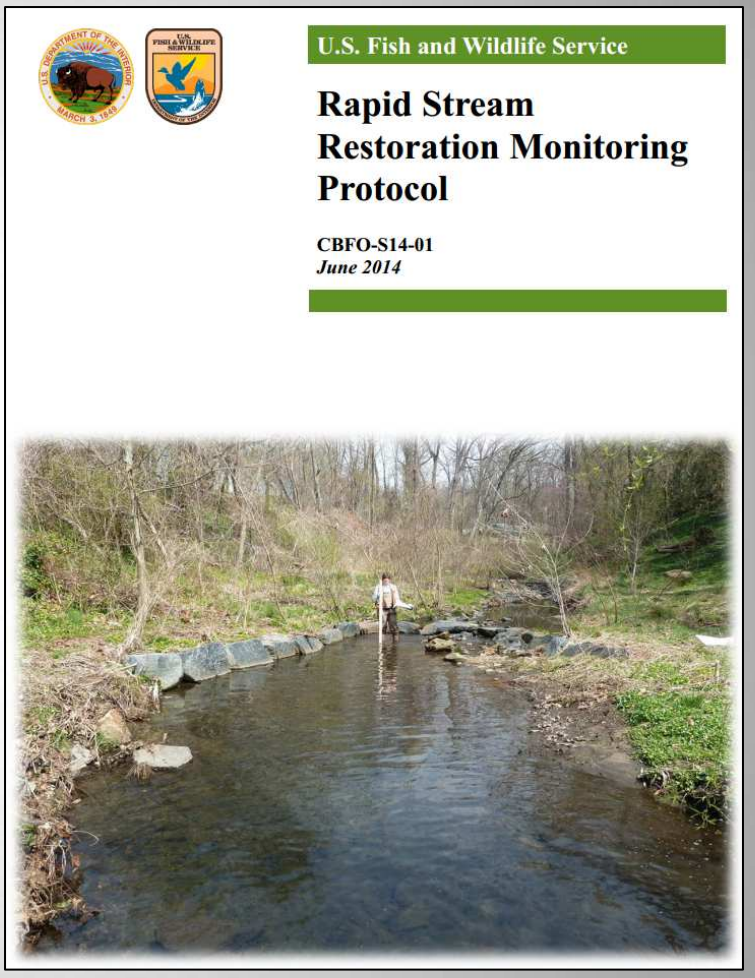
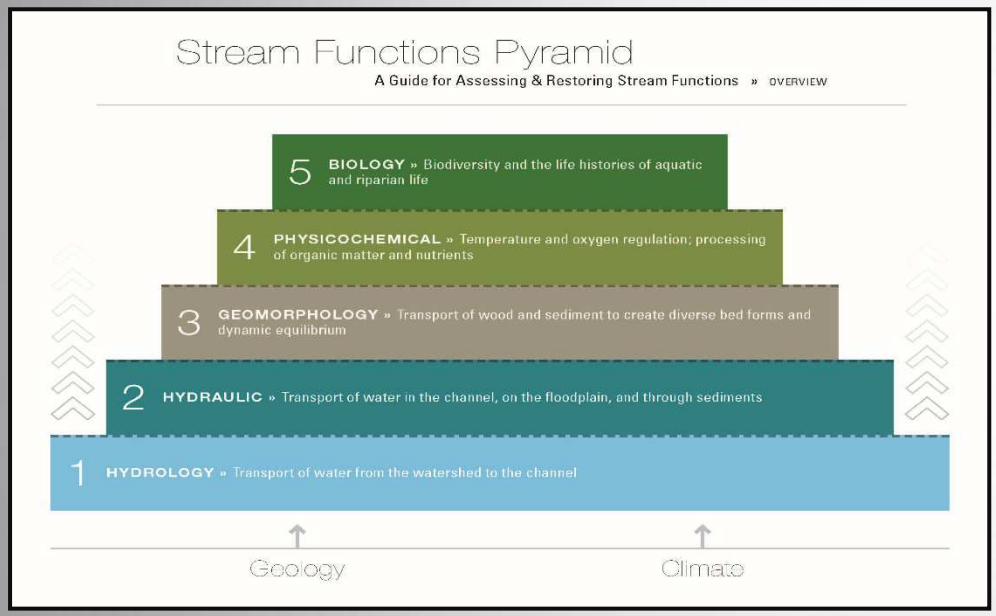




www.fws.gov/chesapeakebay/stream/protocols.html



Level and Category	Parameter	Measurement Method
1 - Hydrology	Channel Forming Discharge (Bankfull)	Regional Curves
		Bankfull Validation
	2-Year Peak Flow	USGS
	10-Year Peak Flow	USGS
	100-Year Peak Flow	USGS
2 - Hydraulics	Floodplain Connectivity	Bank Height Ratio
		Entrenchment Ratio
	Flow Dynamics	Stream Velocity
		Shear Stress
		Stream Power
3 - Geomorphology	Bedform Diversity	Pool-to-pool Spacing
		Pool Depth Variability
		Depositional Pattern
	Channel Evolution	Rosgen
	Riparian Vegetation	PFC
		Buffer Width from Meander Belt Width
	Lateral Stability	Lateral Erosion Rate - Moderate BEHI Curve
		Meander Width Ratio (C and E Stream Types)
4 - Physicochemical	Water Quality	Temperature
		pH
		Turbidity
		Conductivity
		Dissolved Oxygen
5 - Biology	Macroinvertebrate Communities	IBI Score
	Fish Communities	IBI Score

Clifford Branch – Frederick

Restoration completed in 2012

Monitoring:

- As-built survey post restoration
- Function-Based Rapid Stream Assessment
- Conduct yearly until 2017
- MFRO fish survey pre- and post- restoration (years 1, 3)

Little Tuscarora Creek – Frederick

Pre-Restoration Monitoring:

- Detailed Function-Based Watershed and Reach Assessment
  - Vertical stability
  - Lateral stability
  - Bedform diversity
  - Riparian vegetation
- Water quality- Temp. Survey (2 years)
- Biological by DNR MBSS

Post-Restoration Monitoring:

- As-built survey
- Selected profiles and cross sections
- Function-Based Rapid Stream Assessment
- Rapid Stream Restoration Monitoring protocol
- Biological- MBSS

Restoration completed Fall 2015

Navy Dairy Farm – Gambrills

Restoration anticipated to start in 2016

Pre-Restoration Monitoring:

- Detailed Function-Based Watershed and Reach Assessment
  - Vertical stability
  - Lateral stability
  - Riparian vegetation

Post-Restoration Monitoring:

- As-built survey
- Selected profiles and cross sections
- Function-Based Rapid Stream Assessment
- Rapid Stream Restoration Monitoring protocol

Piney Run – Sykesville

Pre-Restoration Monitoring:

- Rapid Function-Based Watershed and Reach Assessment (10 miles)
- Detailed Function-Based Reach Assessment (7 reaches)
  - Vertical stability
  - Lateral stability
  - Bedform diversity
  - Riparian vegetation
- Water quality
- Biological by DNR MBSS

Post-Restoration Monitoring:

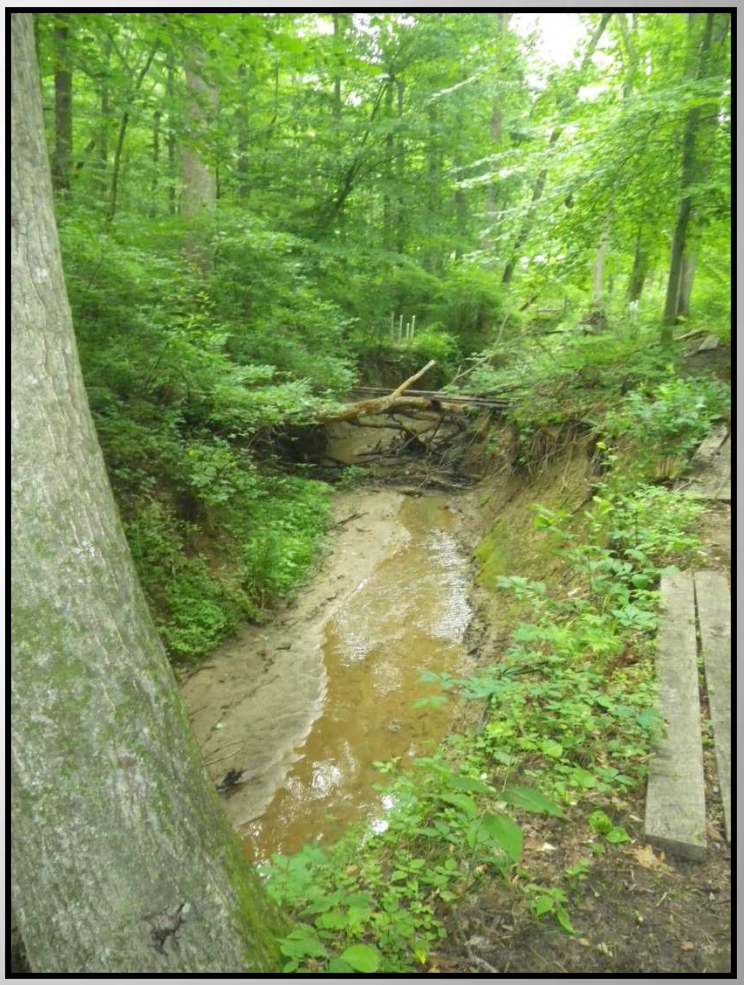
- As-built survey
- Selected profiles and cross sections
- Function-Based Rapid Stream Assessment
- Rapid Stream Restoration Monitoring protocol
- Water quality
- Biological- MBSS

Restoration anticipated to start in 2016

Muddy Creek - Edgewater

Monitoring:

- Collaborative monitoring partnership with DNR and SERC
- Pre-restoration monitoring completed in 2015
- FWS detailed geomorphic monitoring
  - Vertical stability
  - Lateral stability
  - Bed form diversity
  - Bed material characterization
  - Large Woody Debris
  - Riparian vegetation



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